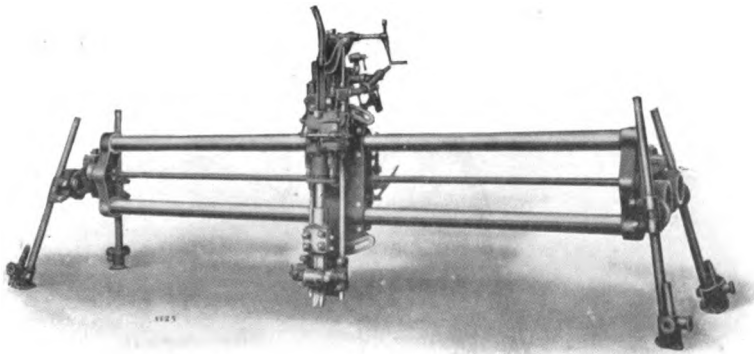
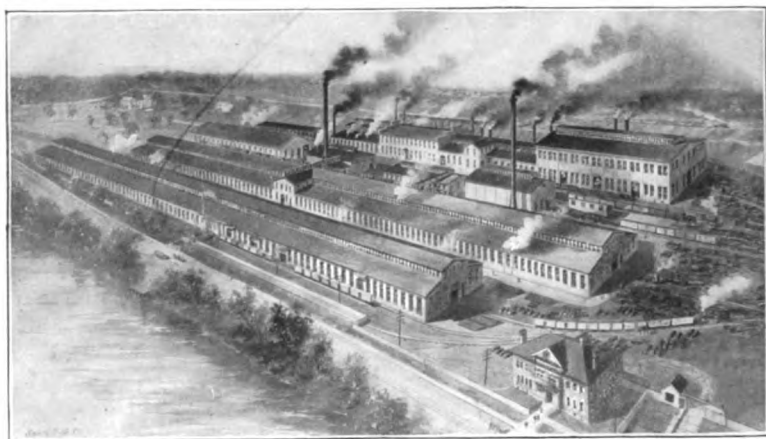


# THE "BRONCHO" CHANNELER

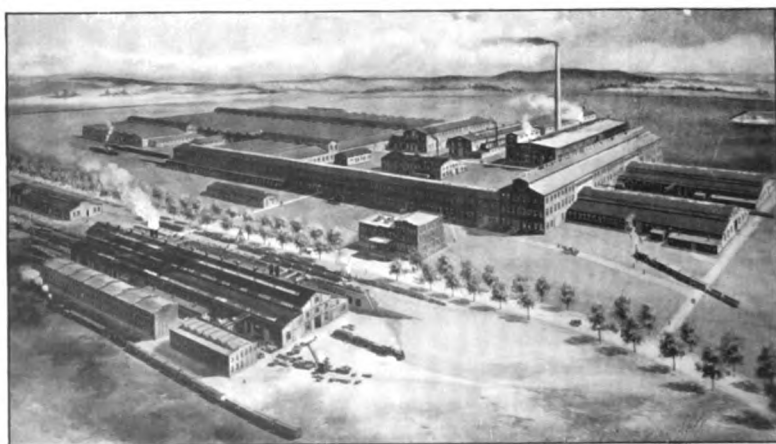


THE **INGERSOLL-SERGEANT** DRILL  
CO.

26 Cortlandt Street  
NEW YORK



**Manufacturing Plant of the Ingersoll-Sergeant Drill Co. at Easton, Pa.**



**Manufacturing Plant of the Ingersoll-Sergeant Drill Co. at Phillipsburg, N. J.**

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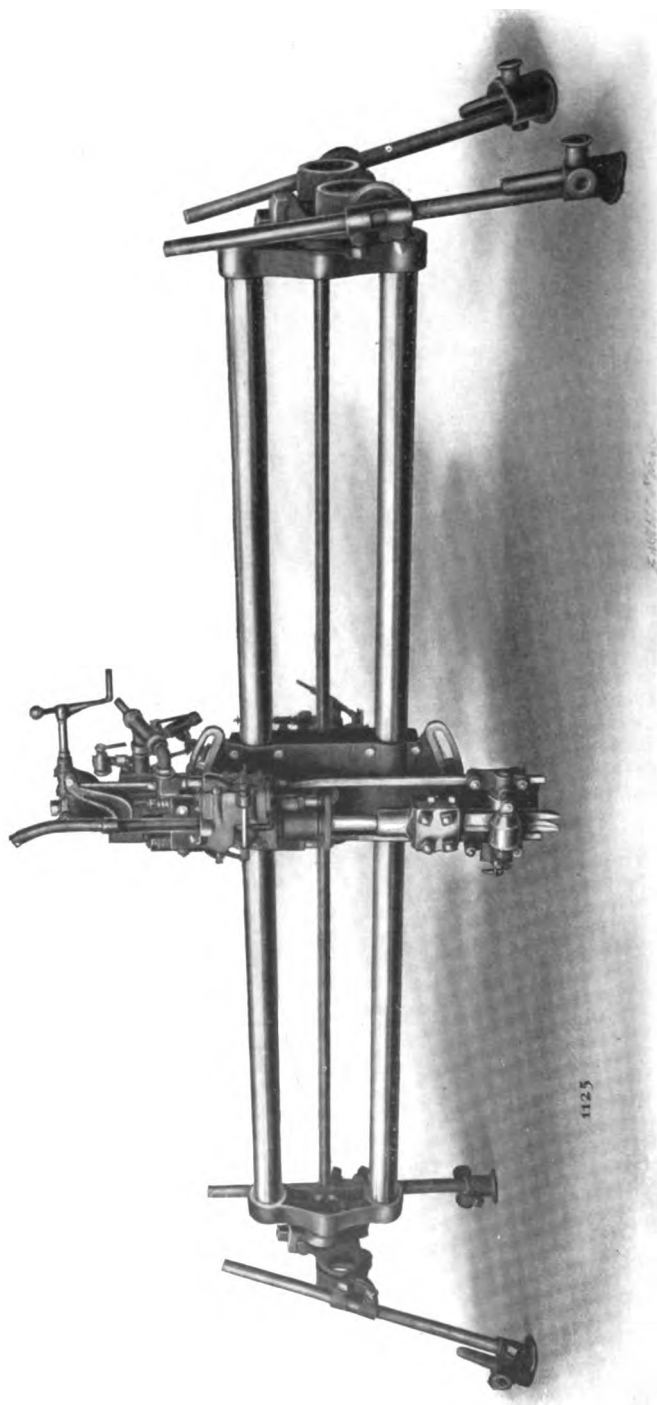
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The "Broncho" Channeler.

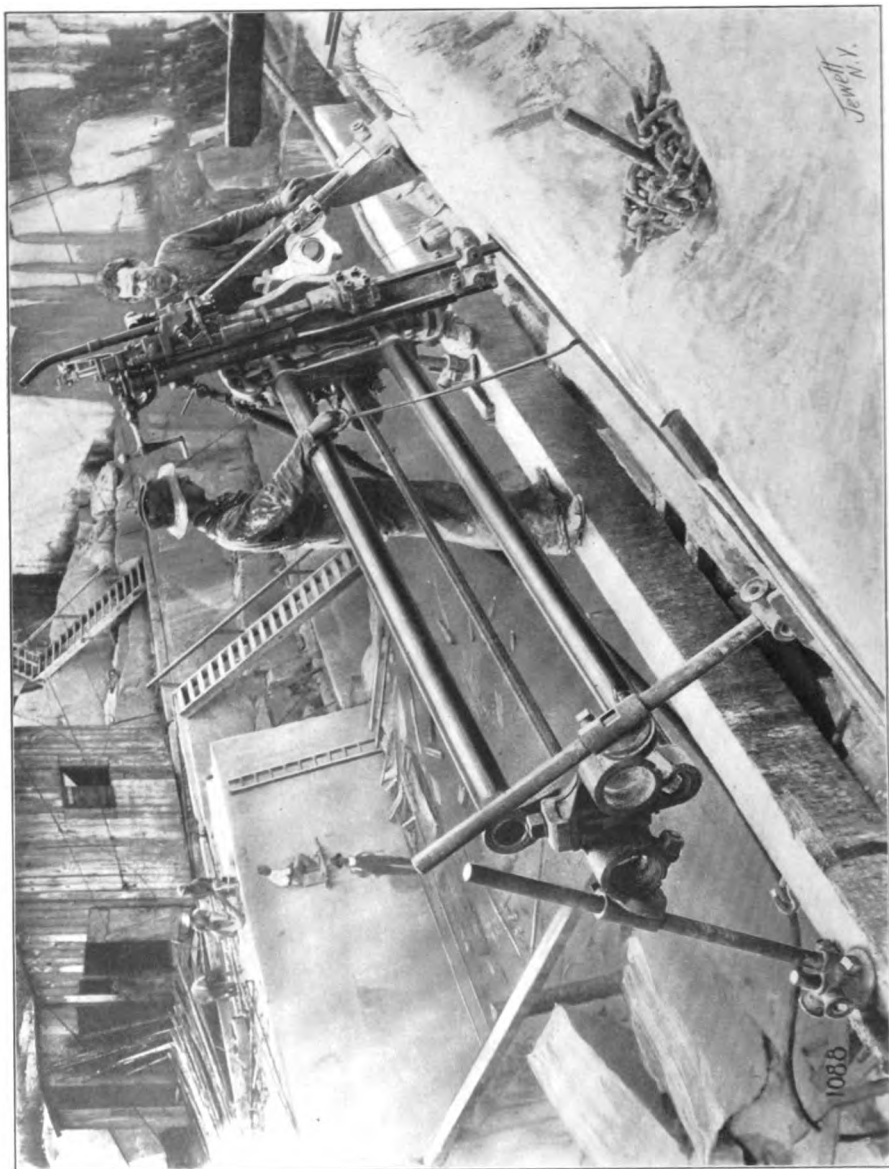
## THE "BRONCHO" CHANNELER

**A**N important development, following the introduction of the track type of channeler is the "Broncho" Channeler, a very efficient and light model machine, which is suited for a wide range of work in quarry, contract, and other service. The large Track Channeler is of greatest value in heavy work, designed to do fast, cheap cutting; handle long and deep cuts, and work in the most difficult materials; but there are also many places where the lighter and cheaper "Broncho" type will be found more economical and satisfactory in operation. As channeling frequently has to be done on material which dips or inclines sharply, the "Broncho" is made very flexible in its adjustment, and is readily adapted to difficult places where it would be impracticable to set the heavier track type of machine. It is also well suited for light work in quarries, in developing new quarries where the value of the material may be proved up before heavy investments in permanent machinery are made, and it is always useful in cutting sumps, key blocks, enlarging the walls of quarries or excavations, and can be used in confined and uneven places.

While this machine is an outgrowth from the Bar Channeler, it should not be confused with the earlier types, as it is the result of a wide experience, changes in design having greatly increased its power, capacity and adaptability.

As shown by the illustrations, this machine consists of a carriage mounted on two parallel bars, along which it is moved automatically by a three-cylinder engine actuating a traveling feed nut. This engine is controlled by a governor, and the speed of travel can be regulated to suit the varying character of material, allowing the strokes to chip closely one after another or to travel rapidly back and forth where preferred. The engine will reverse automatically at each end of the cut or the stop can be moved, causing it to travel back and forth at less than the full bar length and to any desired point.

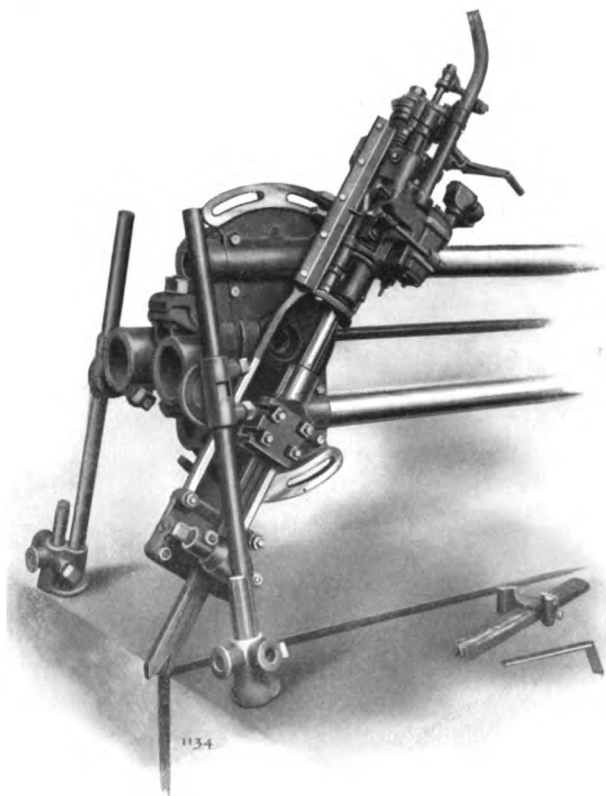
The cylinder is  $3\frac{1}{2}$  inches in diameter with a 6-inch stroke, and the stroke will vary from 2 to 6 inches, when desired. There is a cushioning device whereby the force of the blow can be controlled. This is a valuable feature in starting cuts, in working through soft spots or across splits and seams.



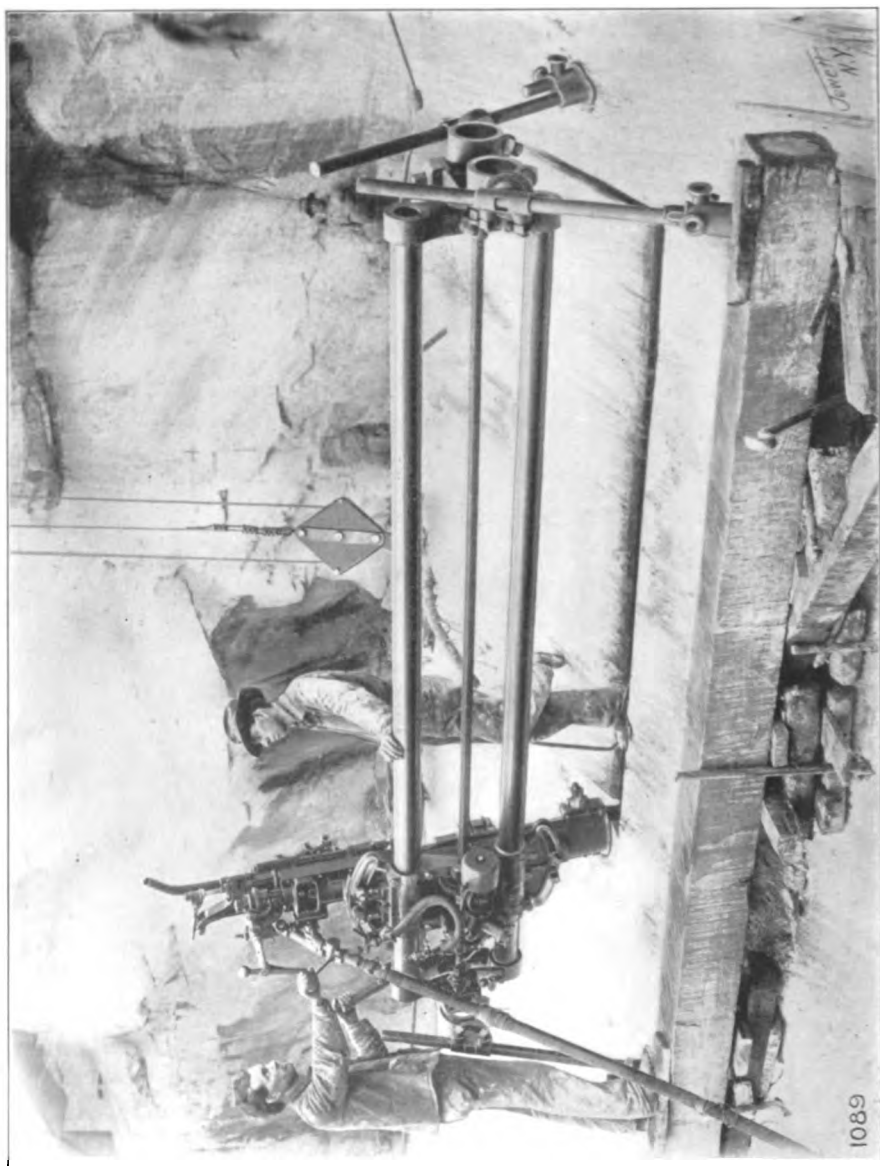
The "Broncho" Channeler at the Waverley Marble Quarries, Tuckahoe, N. Y.

The channeling engine on the old bar channeler resembles a heavy rock drill in construction and valve motion, while this channeling engine and valve gear is similar to that used on the standard heavy track channeler. The cylinder, being short and light, and the piston being freed from the weight, sliding friction and pinching effect of the cross head, the stroke is much quicker and harder. While the machine runs best on dry high pressure steam or air, yet it runs well under conditions of low pressure and wet steam where the older model would give but indifferent service.

The valve motion is worked by a tail rod passing through the top head, serving also as a guide for the piston. Wear on the piston rings and cylinder is consequently very light and the motion free and without binding.



**The "Broncho" Channeler Arranged for Transferring.**



The "Broncho" Channeler on a Side Hill at the Waverley Marble Quarries, Tuckahoe, N. Y.



A simple device has been introduced enabling this machine to be used for drilling a round hole at one or both ends of the cut. This is now the only machine that will cut an open channel and also drill a round hole in any position from vertical to horizontal. When used as a rock drill, the roller guide arrangement, shown in cut No. 1137, is readily removed by loosening four hook bolts; the rotation device is thrown into gear, and a regular drill steel used in the ordinary manner.

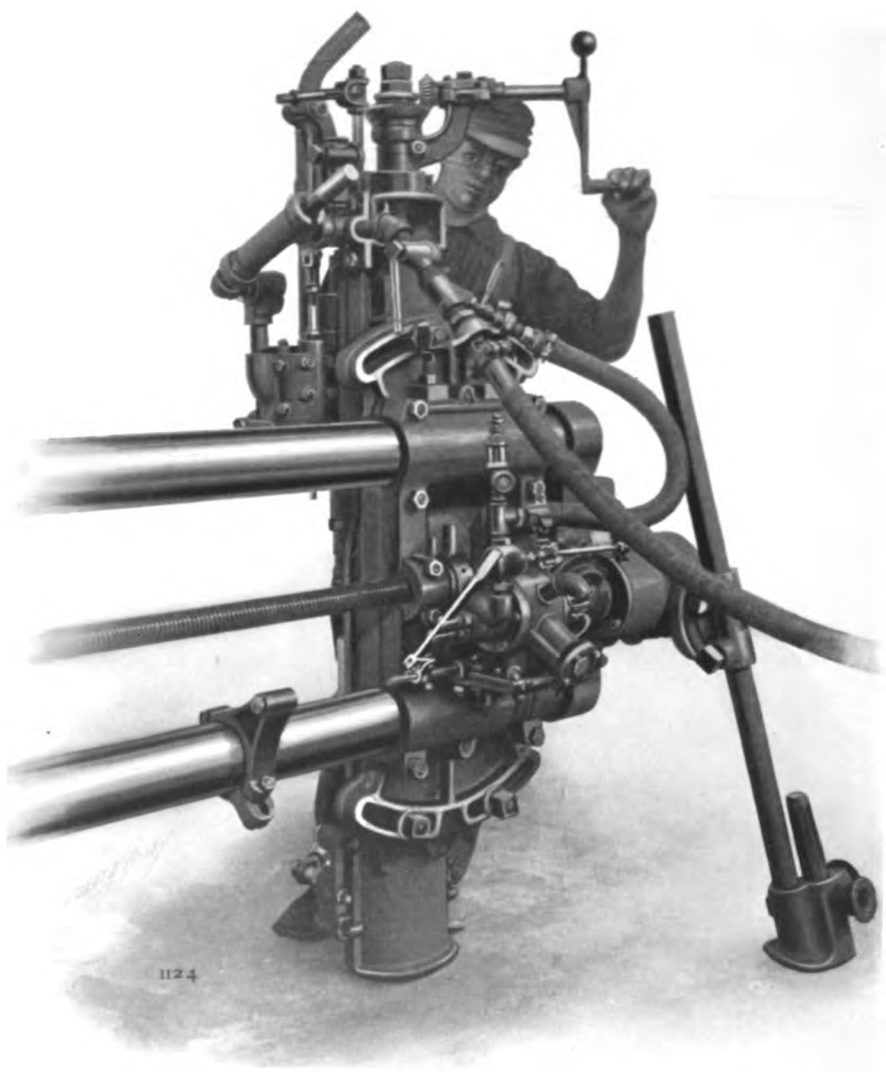
A most important feature of this machine is our patent roller guide. This consists of two case-hardened steel rollers between which the steels work. A considerable experience with it shows no appreciable wear. This enables us to dispense with the older style cross-head, dowel pin, guides, etc. While the new machine will finish cuts about two feet longer than the old bar channeler, it is still much lighter, more rigid and practicable. The roller also prevents the steel from glancing sideways, as it is guided on all four sides.

In changing bits, one bolt is loosened and the front roller swung aside. The guide arrangement is fastened to a plate which can be raised or lowered on the shell of the machine. This roller guide is a very important improvement, as it leaves the machine free to run practically without friction with even more speed and force than a rock drill of the same size, increasing its power and capacity for putting in deep channels or for work under adverse conditions generally.

The feed crank can be swung to either right or left hand side of the machine, to suit the convenience of the operator, and clamped in any position.

The leg adjustment at each end of the bar is universal and rigid, being held by cone clamp effect, which greatly stiffens the machine in operation. The lower ends are fitted with shoes, having lugs for quick movement of the machine with a pinch bar about the floor of the quarry. A cut finished, the machine may be set for a second cut in a few minutes. These shoes are provided with a pointer, which can be "spotted" into the rock and held by set screws, where the machine, on account of the inclination of the rock, shows any tendency to jar out of line with the cut.

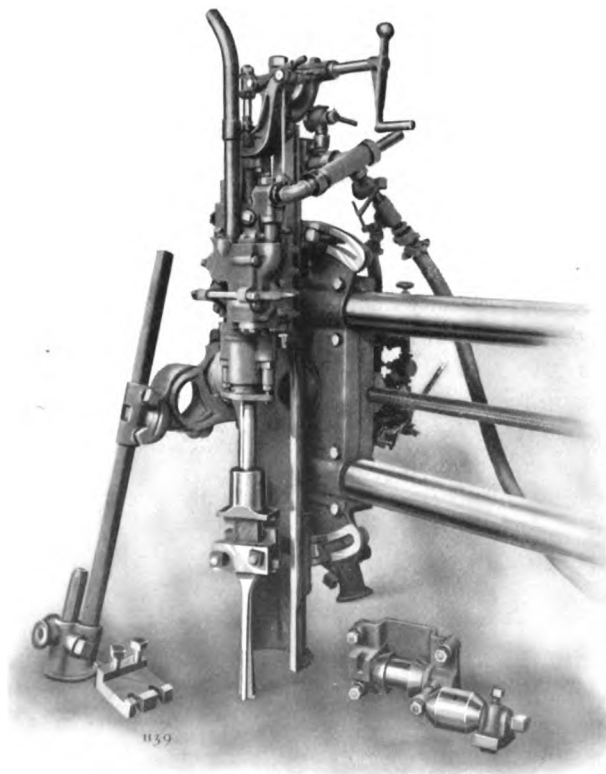
The machine will cut at any angle, and may be adjusted by loosening a nut on each end piece and swinging the bar on centres. It will also transfer cuts to each end of the bar, this position being shown in cuts Nos. 1134 and 1138.



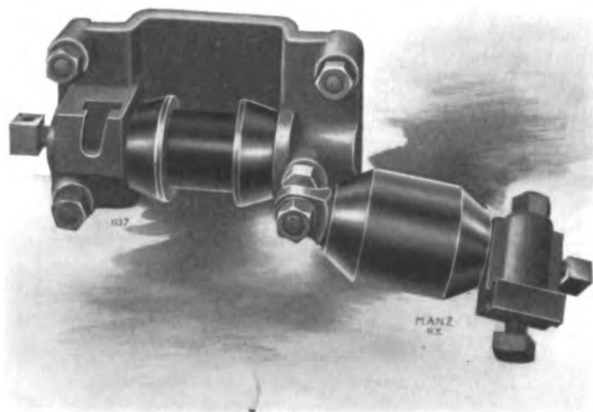
Rear View of the "Broncho" Channeler Drilling the End Hole.

It is designed to make a cut 10 feet 6 inches long, and under favorable conditions has cut as deep as 12 feet 6 inches.

The hardness of the rock and the conditions of channeling vary so much that it is difficult to give an accurate idea of what it will do under all conditions, but in hard marble or limestone it will cut on an average of 40 square feet per day of 10 hours, and in softer marble up to 80 or 120 feet. It has been thoroughly tested in some of the hardest marbles, cutting practically as much as the track machine, because it runs very fast and does not strike so hard a blow as to stun the material. In some marbles the full power of the track machine can't be used, which accounts for this comparatively light and simple machine having nearly the same capacity. Properly handled, it is capable of cutting 75 to 125 square feet



Front View of the "Broncho" Channeler Drilling the End Hole; Roller Guide Removed.



**Roller Guide for the "Broncho" Channeler.**

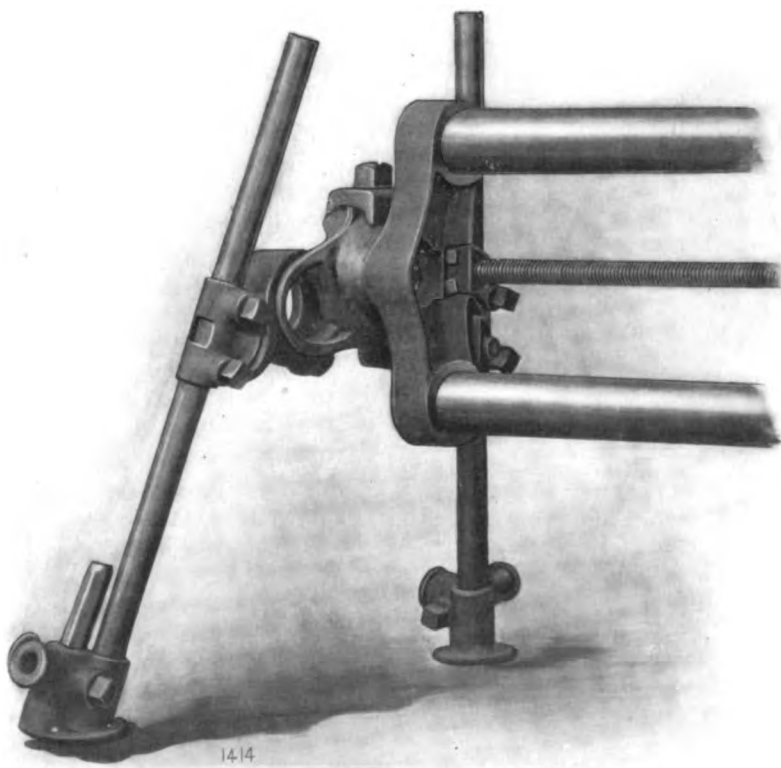
in ordinary sandstone. It is especially adapted for fast, cheap work in slate, cutting 60 to 120 square feet, and will cut 125 to 200 square feet in oolitic limestone. Its capacity depends, of course, entirely on the material and the steam or air pressure delivered to the machine. Its best work is done with cuts 7 to 10 feet deep and with 100 pounds pressure at the channeler, although it will run well with lower pressures. It requires about 175 cubic feet of free air per minute, and a 20 to 25 horse power free steaming boiler is recommended.

The operating expenses are very low, only one runner and helper being necessary.

The equipment consists of the following:

One tool chest, containing shims, clamps, hammer, level, square, 3 files, cold chisel, 11 wrenches, oiler, gauge for bits, handle, clamp, set screws, waste, packing, crosshead clamp, bolts and nuts, 1 set of drill steels, 1 set of channeling steels, 50 feet of hose, 1 jack and lifting bales, iron bar and scoops, scrapers, sand pump.

The net weight of the "Broncho" Channeler and equipment is 2,800 pounds; the domestic shipping weight, 3,500 pounds; export shipping weight, 3,700 pounds.



**End Pieces and Leg Adjustments for "Broncho" Channeler.**



## QUARRYING MACHINERY



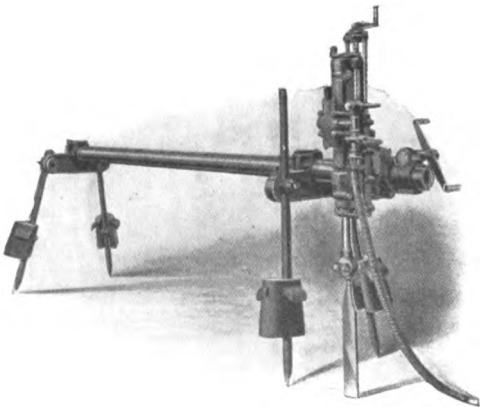
TRACK CHANNELER.

tured by THE INGERSOLL-SERGEANT DRILL CO., which are invaluable to quarrymen. Among them are the Rock Drill, the Track Channeler, the Undercutting Channeler,

WHILE the "Broncho" Channeler is particularly adapted to meet certain conditions already mentioned, there are a number of other machines, manufac-



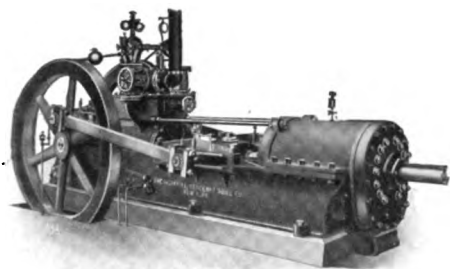
ROCK DRILL.



QUARRY BAR.

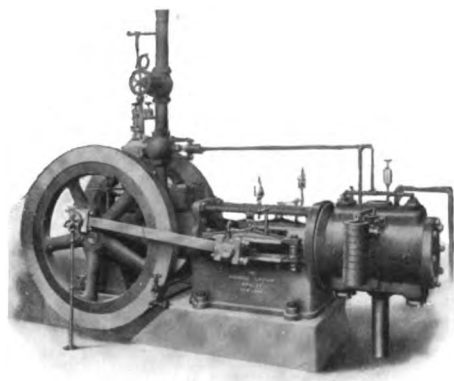
the Gadder, and the Quarry Bar. These are described and illustrated in our Rock Drill Catalog No. 43, which will be sent on request.

# AIR COMPRESSORS

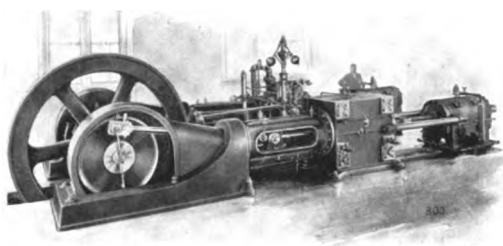


CLASS "A" COMPRESSOR.

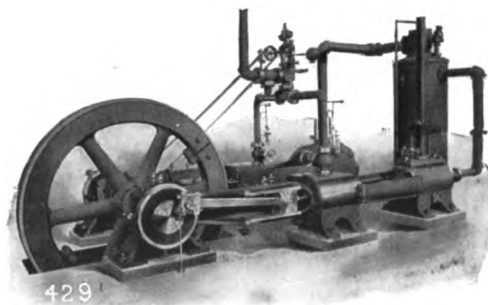
THE INGERSOLL-SERGEANT DRILL Co. manufactures a complete line of Air Copressors, meeting all conditions required for quarry work. Machines of all types and duties, operated by steam, belt or electric motor, are shown in the Compressor Catalog, which will be mailed on request.



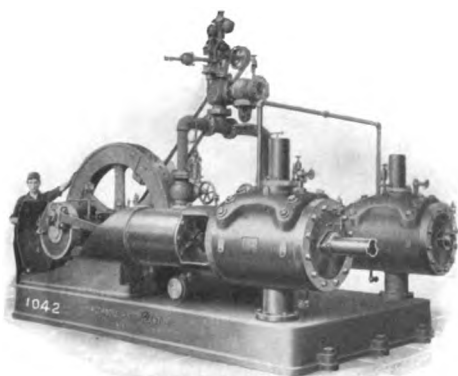
CLASS "F" COMPRESSOR.



CORLISS COMPRESSOR.



CLASS "G" COMPRESSOR.



CLASS "H" COMPRESSOR.



CLASS "J" COMPRESSOR.

